

# Materials Tip



## Materials Engineering Branch

Use of Thermal Transfer Grease			
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Apiezon-H hydrocarbon grease has been used successfully as a thermal transfer material across interfaces on a number of GSFC programs.

However, as one might expect, as with any grease, whether it be a hydrocarbon or a silicone, it will have a tendency to squeeze out when a compressive force is applied. Additional oozing may occur later during thermal-vacuum and vibration testing which will require continual cleanup. Although the hydrocarbon greases, such as Apiezon-L and N, seem to do this to a lesser degree than the silicone greases, the problem still exists.

Additionally, if it becomes necessary at some later time to remove a component which has used a thermal grease, the degree of removal difficulty depends largely on the size of the component and its location. If the component is large and is located in a confined space, removal could be a formidable task. Also, in such cases, there is always the problem of cleanup and reapplication of grease, both of which can be time consuming.

In order to avoid these kinds of problems, it is suggested that an alternate heat transfer material such as CHO-THERM, which can be purchased in sheet form from Chomerics be considered. The two Cho-Therm materials that we have tested, Cho-Therm 1661 and 1671, both have acceptably low outgassing. They are high temperature cured silicone rubbers that are filled with boron nitride and fiberglass. The thermal conductivity for either of the two as advertised by Chomerics is 30 BTU-in/hr-ft<sup>2</sup>-°F.